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A WATERWAY BETWEEN CHICAGO AND ST. LOUIS A STUDY IN FREIGHT RATES

The construction of a waterway between the Great Lakes and the Gulf of Mexico has been advocated with vigor by various organizations within the last half-dozen years, and considerable public attention has been given to the several schemes proposed. The problems of construction, and to some extent those of traffic development, have been set forth by special boards of engineers and commissions.¹ The writer has presented a study of the freight rates and freight traffic by rail and by water on and parallel to the proposed route to the readers of the *Journal of Political Economy*, in the June, July, and October numbers of 1912.² In that study a comparison of rail with boat rates on the route south of Peoria, Illinois, was made; but no comparison of rates between Chicago and points on the route was possible because there were no boat rates published, although there was an open water route between Chicago and the Gulf of a minimum depth of $4\frac{1}{2}$ feet. That route is still open, and no boat rates are yet published between Chicago and points on it,³ hence no comparison of boat with rail rates between Chicago and points on the route can be made even now, but a comparison of rail rates parallel to the upper part of the route with rail rates along the lower Mississippi River does seem pertinent at this time.

Prior to the appearance of the articles mentioned above, a special board of government engineers reported in favor of a waterway of a minimum depth of only eight feet between Chicago and St. Louis. Excerpts from this report are given below:

.... If the waterway is to be used by vessels capable of navigating the ocean and the Great Lakes, it should be given a depth sufficient for the eco-

¹ *The Illinois Waterway Report*, 1909, Internal Improvement Commission of Illinois; H. Doc. 263, 59th Cong., 1st sess.; H. Doc. 50, 61st Cong., 1st sess.; and H. Doc. 1374, 61st Cong., 3d session.

² Also reprinted under title of *The Lakes-to-the-Gulf Deep Waterway*.

³ There are rates for lighterage and towage on the Chicago River and the Sanitary and Ship Canal.

nomic carriers above described, and this, in the opinion of the Board, should be not less than 24 feet; but if it is to be constructed for vessels adapted to river traffic, economic navigation does not require its depth to exceed 9 feet. The depth of 14 feet, so strenuously insisted upon by certain advocates of the waterway, is greater than necessary for river navigation, and entirely insufficient for either lake or ocean vessels. The only canals of 14 feet depth of which the Board has knowledge are the Canadian canals along the St. Lawrence River and the Welland Canal connecting Lakes Erie and Ontario, which were constructed in the infancy of lake navigation. Little use is now made of them for transportation to and from Chicago. This depth has not been adopted by any other nation, nor retained by Canada in recent projects.

Considered as a business investment, a waterway of even moderate depth from Chicago to the Gulf is still more or less experimental. There is already maintained under existing projects a channel of 9 feet depth from New Orleans to Cairo, and of 8 feet from Cairo to St. Louis, and of at least $4\frac{1}{2}$ feet from St. Louis to Chicago via the Illinois and Michigan Canal. . . . As a channel of 8 feet depth is now maintained from Cairo to St. Louis, and can be extended from St. Louis to Utica at relatively small cost, business caution dictates that a waterway of this depth be obtained and tested before entering upon enormously expensive projects of questionable utility.¹

Recently there appears to be a consensus of opinion among waterway advocates, and probably a majority of the members of Congress, that at least the first work on the proposed Lakes-to-the-Gulf Waterway should be the construction of an eight-foot channel between Lockport, Illinois, and St. Louis, Missouri.² No attempt to construct a 14-, 20-, or 24-foot channel on the lower part of the route seems likely to be made in the immediate future. If events do take the course that now seems likely, the upper part of the route (between Chicago and St. Louis) should receive special attention; and for this reason a comparison of rail rates parallel to the lower part of the route with rail rates along the upper part of the route is set forth in this brief article. The rail rates parallel to the lower part of the route are water-forced rates. Are they lower than the present rail rates parallel to the upper part of the route? If not, is it probable that the proposed waterway of the upper part of the route will force a reduction in the parallel rail rates? The comparison is first made, and then its significance is discussed.

¹ H. Doc. 1374, 61st Cong., 3d sess., pp. 6-7.

² The present delay in the construction work seems to be due to the difficulty of an agreement between the national government and the state of Illinois.

The route of the proposed waterway between Chicago and St. Louis is within the state of Illinois,¹ except that part of it lying between Grafton, Illinois, and St. Louis, Missouri. The Illinois distance rates govern freight traffic by rail over the entire route. Hence a comparison of rail rates parallel to the proposed waterway with rail rates on the Mississippi below St. Louis is a comparison of the Illinois distance rates with specific rates parallel to the lower Mississippi River.

The Public Service Commission of Illinois prescribes a freight classification and both class and commodity distance rates. One of the difficulties in a comparison of class rates in Illinois with those parallel to the Mississippi below St. Louis is that the Illinois Classification applies in Illinois and the Southern Classification on the lower Mississippi. Under the Illinois Classification, classified freight is assigned to one of the ten classes or to some multiple of the first class. The first-class rate is the highest of the scale, and each succeeding class rate is lower than the preceding. In contrast, under the Southern Classification there are thirteen regular classes; and class rates do not descend regularly throughout the scale. This point is made clear by the rate scales shown below.²

FROM ST. LOUIS, MO., TO	IN CENTS PER 100 POUNDS						PER BL.
	Class	1	2	3	4	5	
Memphis, Tenn.	Rate	65	50	45	35	30	25
New Orleans, La.	Rate	90	75	65	50	40	35
IN CENTS PER 100 POUNDS							
FROM ST. LOUIS, MO., TO	A	B	C	D	E	H	F
Memphis, Tenn.	15	26	15	12	20	42	30
New Orleans, La.	25	38	25	20	28	57	45

The difficulties are not so serious, however, as to prevent a valid comparison. The number of classes in the southern scale may for this comparison be reduced to ten, the same number as

¹ See *Journal of Political Economy*, XX, 6 (June, 1912), p. 542.

² Mississippi River Points' Tariff No. 6, issued by Agent M. P. Washburn.

there are in the Illinois Classification. Classes E and F are taken care of in the commodity tables. Class F is flour and Class E is beer.¹ Class H is confined to whiskey and domestic wines and brandies in barrels and in iron drums when shipped in carloads. These commodities are assigned to the fourth class in the Illinois Classification, and since this class is near the middle of the scale it may be disregarded without materially affecting the general average of the scale. By these eliminations a scale of ten classes, from 1 (the highest) to D (the lowest) remains, and may be compared with the ten classes of the Illinois Classification. The descent from the first class to Class D is not regular even after the eliminations, but it is possible to make a comparison of the scales with sufficient approximation to accuracy.

The class rates applying from St. Louis, Missouri, to the points specified on the Mississippi are shown in Table I in comparison with the Illinois distance rates for the same distances. From St. Louis to Cairo, Illinois, the Illinois distance rates are applied; hence in this case, the river competition has not forced the class rates lower than the Illinois distance rates. This means that shippers between St. Louis and Cairo have no advantage over shippers between any other two points in Illinois that are the same distance apart as those two cities.

From St. Louis to all points specified beyond the limits of Illinois, the actual rates are higher than the Illinois distance rates on every class. And the specific rates are materially higher. From St. Louis to Memphis, for example, where there is a packet line actively competing for the traffic, the specific class rates are from 2 to 20 cents higher than the Illinois distance rates. From St. Louis to Helena, Arkansas, the specific rates are from 9 to 44 cents higher than the Illinois distance rates, from St. Louis to Greenville, Mississippi, from 8 to 41 cents, from St. Louis to Vicksburg, Mississippi, from 6 to 39 cents, and from St. Louis to New Orleans, from 6 to 34 cents. Moreover, the points used for comparison are the large towns at which water competition is strongest. The rates from St. Louis to points intermediate to those specified are usually materially higher than those given. The specific rates

¹ Flour rates are compared in Table II and beer rates in Table III.

given are the lowest water-forced rates in the Mississippi Valley, and even they are much higher than the Illinois distance rates. In some instances the Illinois distance rates are less than half the

TABLE I

CLASS RATES ON FREIGHT SOUTHWARD FROM ST. LOUIS, MISSOURI., COMPARED
WITH ILLINOIS DISTANCE RATES

Class rates in cents per 100 pounds

From St. Louis, Mo., to	Miles	1	2	3	4	5	6	(A) 7	B 8	C 9	D** 10¶
*Cairo, Ill.	Specific....	152	36	29	22	18	14	14	13	11	8
	Illinois....	152	36	29	22	18	14	14	13	11	8
	Differential....	0	0	0	0	0	0	0	0	0	0
†Fulton, Ky.	Specific....	201	66	57	47	37	28	24	23	27	23
	Illinois....	201	40	32	25	20	16	15	14	12	9
	Differential....	26	25	22	17	12	9	9	5	14	8
‡Memphis, Tenn.	Specific....	305	65	50	45	35	30	25	15	26	15
	Illinois....	305	45	37	29	23	18	17	16	14	10
	Differential....	20	13	16	12	12	8	9	12	4	2
‡Helena, Ark.	Specific....	338	90	75	65	50	40	35	25	31	25
	Illinois....	338	46	38	30	23	19	18	16	14	12
	Differential....	44	37	35	27	21	17	9	17	13	10
‡Greenville, Miss.	Specific....	455	90	75	65	50	40	35	25	38	25
	Illinois....	455	49	41	33	26	20	20	18	16	13
	Differential....	41	34	32	24	20	15	7	22	12	8
‡Vicksburg, Miss.	Specific....	525	90	75	65	50	40	35	25	38	25
	Illinois....	525	51	42	34	27	21	21	19	17	14
	Differential....	39	33	31	23	19	14	6	21	11	7
‡Natchez, Miss.	Specific....	546	90	75	65	50	40	35	25	38	25
	Illinois....	546	52	43	35	27	22	21	20	18	15
	Differential....	38	32	30	23	18	14	5	20	10	7
‡Baton Rouge, La.	Specific....	671	90	75	65	50	40	35	25	38	25
	Illinois....	671	55	46	38	28	23	22	21	19	16
	Differential....	35	29	27	22	17	13	4	19	9	6
‡New Orleans, La.	Specific....	701	90	75	65	50	40	35	25	38	25
	Illinois....	701	56	47	38	29	24	23	21	19	16
	Differential....	34	28	27	21	16	12	4	19	9	6

* Illinois Central R.R. Tariff, I.C.C. No. A-7722.

† Illinois Central R.R. Tariff, I.C.C. No. 4776.

‡ Agent M. P. Washburn's Tariff, I.C.C. No. 86.

§ The Illinois Distance Table does not extend beyond 500 miles, but to complete the comparison to New Orleans the rates for the longer distances were computed on the same basis as for distances under 500 miles.

** Classes of the Southern Classification.

¶ Classes of the Illinois Classification.

specific rates. This is true, for example, of the third-, fourth-, fifth-, eighth-, and ninth-class rates from St. Louis to Helena, Arkansas. The class rates, then, are materially higher parallel to the lower Mississippi River than in Illinois for the same distances.

In comparing commodity rates there are only two important difficulties, namely: (1) comparison of the entire list of commodities is not usually advisable, and proper selection is not always easy; and (2) the minimum carload weights must be taken into consideration. In the comparison that is here made, the first difficulty has been largely overcome. The Illinois commission prescribes rates for the nine commodities shown in Table II, and all other commodities are governed by class rates when shipped within the state. The second difficulty has been met by stating the minimum carload weights in the headings and footnotes of the tables.

The comparison of the commodity rates prescribed by the Illinois commission with the rates on the same commodities from St. Louis to points specified is made in Table II. The points selected on the lower Mississippi are the same as those shown in Table I. In only four cases are the Mississippi Valley rates lower than the Illinois rates. Of course, the Illinois rates are commodity rates in every case, while the Mississippi Valley rates are commodity rates in more than half the comparisons but are class rates in other cases. Commodity rates are tabulated where such rates are in effect, and the class rates that apply on those commodities are incorporated in the table where no commodity rates are published.¹ Here again we find material differentials between the Illinois rates and those in the Mississippi Valley, and in only four of the eighty-one comparisons are the Illinois rates higher. Furthermore, the sum of these four differentials is only six cents, while in one of the other 77 cases alone the differential is 22 cents.

There is, however, one factor in the comparisons of Table II that makes that table not entirely conclusive evidence that commodity rates parallel to the lower Mississippi are higher than in Illinois. That table contains a comparison of all Illinois commodity

¹ The rates applicable in July, 1913, were tabulated. They were obtained through the courtesy of Mr. D. W. Longstreet, freight traffic manager of the Illinois Central Railroad.

TABLE II

COMMODITY RATES IN ILLINOIS COMPARED WITH SIMILAR RATES SOUTHWARD FROM
ST. LOUIS, MISSOURI.—MINIMUM CARLOAD WEIGHT 24,000 POUNDS
EXCEPT WHERE OTHERWISE SPECIFIED

Rates in cents per 100 pounds

From St. Louis, Mo., to	Miles	Wheat and Flour	Other Grains and Their Products	Pine Lumber in the Rough	Bituminous Coal	Horses and Mules	Cattle	Fruits and Veg- etables*	Salt	Limestone for Fertilizer
Cairo, Ill.	Specific	152	9	8	7	5	12	10	9	4
	Illinois	152	9	8	8	5	12	10	9	4
	Differential. . . . .	....	0	0	††1	0	0	0	0	0
Fulton, Ky.	Specific	201	17	16	13	**17	†21	†24	24	§11 13
	Illinois	201	11	10	10	5	14	12	12	10 5
	Differential. . . . .	....	6	6	3	6	7	12	12	1 8
Memphis, Tenn.	Specific	305	||11	||10	§15	9	†21	†17	22	§ 8 ¶12
	Illinois	305	12	11	11	6	16	15	14 11	7
	Differential. . . . .	....	††1	††1	4	3	5	2	8 ††3	5
Helena, Ark.	Specific	338	||18	||14	§20	§17	†25	†21	30	§16 ¶17
	Illinois	338	12	11	12	7	17	15	14 11	8
	Differential. . . . .	....	6	3	8	10	8	6	16 5	9
Greenville, Miss.	Specific	455	||18	||16	§20	§17	†38	†31	30	§16 ¶17
	Illinois	455	14	12	13	7	19	17	15 12	8
	Differential. . . . .	....	4	4	7	10	19	14	15 4	9
Vicksburg, Miss.	Specific	525	||18	||16	§20	§17	†42	†31	30	§16 ¶17
	Illinois	525	14	13	13	8	20	18	16 12	9
	Differential. . . . .	....	4	3	7	9	22	13	14 4	8
Natchez, Miss.	Specific	546	||18	||16	§20	§17	†42	†31	30	§16 ¶17
	Illinois	546	15	13	13	8	21	19	16 12	9
	Differential. . . . .	....	3	3	7	9	21	12	14 4	8
Baton Rouge, La.	Specific	671	||18	||16	§20	§17	42	†31	30	§16 ¶17
	Illinois	671	16	14	14	9	23	20	17 13	9
	Differential. . . . .	....	2	2	6	8	19	11	13 3	8
New Orleans, La.	Specific	701	||18	||16	§20	§17	42	†31	30	§16 ¶17
	Illinois	701	16	14	15	9	24	22	18 13	10
	Differential. . . . .	....	2	2	5	8	18	9	12 3	7

* As described in Illinois Classification, Supplement No. 23, page 105. Carload minimum 20,000 pounds, except that on apples and pears the minimum is 24,000 pounds.

† Rate published per car with no minimum, reduced to cents per hundred on basis of 24,000 pounds.

‡ Minimum carload weight 20,000 pounds.

§ Minimum carload weight 30,000 pounds.

|| Minimum carload weight 26,000 to 90,000 pounds.

¶ Minimum carload weight 40,000 pounds.

** Minimum carload weight is the capacity of the car.

†† The specific rates are lower in these four cases.

rates with some Mississippi Valley commodity rates and some class rates. Since commodity rates are usually lower than class rates there is a possibility of error. In fact, there is lack of balance in the comparison, which should be corrected. Table III was prepared for the purpose of such correction. In this table a comparison of the rates of nine commodities that move in largest amounts parallel to the lower Mississippi¹ is made with the Illinois rates on the same commodities. In Table III the Illinois rates are class rates, and the Mississippi Valley rates are commodity rates in most cases. We have, therefore, a correction for Table II in Table III. But even in Table III, the differentials are preponderantly in favor of the Illinois rates. That is, even class rates in Illinois are usually lower than rates for the commodities that move in largest amounts on commodity rates parallel to the lower Mississippi. Tables I-III show quite conclusively that freight rates in Illinois are already lower than those from St. Louis to the most important competitive points on the lower Mississippi. But it seems well to compare the Illinois rates with the rates between New Orleans and other points as far north as Memphis, Tennessee, to ascertain whether rates are lower there than in Illinois.

On the Mississippi between St. Louis and Cairo there is maintained a minimum, mean, low-water depth of eight feet; between Cairo and the mouth of the Red River, of nine feet; and south of the junction of the Red River, of thirty feet. May not the rates be lower parallel to the deeper section of the river? To answer the question Table IV is presented. Here the rates on classes between New Orleans and certain points north of New Orleans to, and including, Baton Rouge, Louisiana, are compared with the Illinois class rates. This section of the river is not less than thirty feet in depth, and there is a boat landing at every point specified. Yet in fifty comparisons there are only seven differentials in favor of the Mississippi Valley rates. It is true that the Western Classification applies on the route; but this does not invalidate the general comparison, because the Western Classification is very similar to the Illinois Classification.

¹ The writer tabulated the commodities moving from St. Louis to the points specified for the calendar year 1909, and the commodities listed in Table III are from the list of commodities moving in largest amounts excluding commodities shown in Table II.

A comparison of the class rates from New Orleans to certain points north of Baton Rouge with the Illinois rates is made in

TABLE III

COMMODITY RATES SOUTHWARD FROM ST. LOUIS, MISSOURI, COMPARED WITH
SIMILAR RATES IN ILLINOIS—MINIMUM CARLOAD WEIGHT 24,000
POUNDS, EXCEPT ON HAY AND BEER, 20,000 POUNDS

Rates in cents per 100 pounds

From St. Louis, Mo., to		Miles	Common Brick	Fresh Meats	Cured Meats	Hay (Baled)	Beef in Wood	Corn Syrup and Glycerine	Cement (Building)	Fertilizer	Machinery*
Cairo, Ill.	Specific	152	8	18	13	8	14	14	8	8	14
	Illinois	152	8	18	14	8	14	14	8	8	14
	Differential.	0	0	0	††1	0	0	0	0	0	0
Fulton, Ky.	Specific	201	12	†37	35	17	26	28	†13	§12	†24
	Illinois	201	9	20	16	9	16	16	9	9	15
	Differential.	3	17	19	8	10	12	4	3	3	9
Memphis, Tenn.	Specific	305	†10	†28	21	†12	16	†12	†9	§10	25
	Illinois	305	10	23	18	11	18	18	11	10	17
	Differential.	0	5	3	1	††2	††6	††2	0	0	8
Helena, Ark.	Specific	338	†15	†48	26	†20	21	†16	†14	§15	35
	Illinois	338	10	23	19	12	19	19	12	10	18
	Differential.	5	25	7	8	2	7	2	2	5	17
Greenville, Miss.	Specific	455	†15	†48	33	†20	21	†16	†14	§15	35
	Illinois	455	12	26	20	13	20	20	13	12	20
	Differential.	3	22	13	7	1	††4	1	1	3	15
Vicksburg, Miss.	Specific	525	†15	†48	33	†20	21	†16	†14	§15	35
	Illinois	525	13	27	21	14	21	21	14	13	21
	Differential.	2	21	12	6	0	5	0	0	2	14
Natchez, Miss.	Specific	546	†15	†48	33	†20	21	†16	†14	§15	35
	Illinois	546	13	27	22	15	22	22	15	13	21
	Differential.	2	21	11	5	††1	††6	††1	2	2	14
Baton Rouge, La.	Specific	671	†15	†48	33	†20	21	†16	†14	§15	35
	Illinois	671	14	28	23	16	23	23	16	14	22
	Differential.	1	20	10	4	††2	††7	††2	1	1	13
New Orleans, La.	Specific	701	†15	†48	33	†20	21	†16	†12	§15	35
	Illinois	701	14	29	24	16	24	24	16	14	23
	Differential.	1	19	9	4	††3	††8	††4	1	1	12

* Sawmills, boilers, and other machinery taking sixth-class rates.

† Minimum carload weight, 20,000 pounds.

‡ Minimum carload weight, 40,000 pounds.

§ Minimum carload weight, 30,000 pounds.

¶ Minimum carload weight, 35,000 pounds.

†† Specific rates are lower in these fourteen cases.

Table V. The first point specified (Roxie, Mississippi) is not a Mississippi River point, and was selected to show that at the non-river points still higher rates apply than at the river points. Of the sixty comparisons made only nine differentials appear in favor of the Mississippi Valley rates, and in most cases these are small. These Mississippi Valley rates were made low to obtain the traffic

TABLE IV

CLASS RATES BETWEEN NEW ORLEANS AND BATON ROUGE, LOUISIANA, AND OTHER POINTS COMPARED WITH ILLINOIS CLASS RATES FOR SIMILAR DISTANCES
Rates in cents per 100 pounds

Between New Orleans, La., and	Miles	1	2	3	4	5	(A) 6	B 7	C 8	D 9	E 10\$
*La Place, La.	Specific.	30	25	23	20	18	15	12	8	10	11
	Illinois.	30	18	16	13	10	8	7	7	6	5
	Differential.	7	7	7	8	7	5	1	4	6	4
Lutcher, La.	Specific.	42	25	23	20	18	15	12	8	10	11
	Illinois.	42	23	18	15	11	9	8	8	7	5
	Differential.	2	5	5	7	6	4	0	3	6	3
Burnside, La.	Specific.	62	25	23	20	18	15	12	8	10	11
	Illinois.	62	26	21	18	12	10	10	9	7	6
	Differential.	†	1	2	2	6	5	2	1	3	5
St. Gabriel, La.	Specific.	75	25	23	20	18	15	12	8	10	11
	Illinois.	75	27	23	19	13	10	10	10	8	6
	Differential.	†	2	0	1	5	5	2	2	2	2
Baton Rouge, La.	Specific.	80	25	23	20	18	15	12	8	10	11
	Illinois.	80	29	24	20	14	11	11	11	8	7
	Differential.	†	4	†	0	4	4	†	3	2	4

* Illinois Central R.R. Tariff, I.C.C. No. 4186.

† Specific rates are lower in these seven cases.

‡ Classes of the Western Classification.

§ Classes of the Illinois Classification.

between New Orleans on the one hand and Memphis and other points on the other. Yet they are materially higher than the Illinois rates.

Since the rail rates parallel to the Mississippi are higher than the present rail rates in Illinois, as shown above, and since the Illinois rates apply as maximum rates via all short lines¹ in the

¹ The term "short line" is here used to indicate the shortest railway route between any two points. The longer routes must meet the rates made by the short lines, and the circuitous carriers, therefore, make rates that are less than for the actual distance.

state, the rates parallel to the proposed eight-foot channel are lower than the competition of the boats on the lower Mississippi have forced the rates parallel to that section of the route. With these conditions known, three questions are still unanswered: Will the boats on the new channel be able (1) to force a reduction in the parallel rail rates, or (2) to carry freight more advantageously for

TABLE V
CLASS RATES BETWEEN NEW ORLEANS AND POINTS NORTH OF BATON ROUGE,
COMPARED WITH ILLINOIS CLASS RATES FOR SIMILAR DISTANCES
Class rates in cents per 100 pounds

From New Orleans, La., to		Miles	1	2	3	4	5	6	{A 7	B 8	C 9	D 10
*Roxie, Miss.	Specific....	169	68	58	48	41	34	30	23	25	25	20
	Illinois....	169	37	30	23	19	15	14	13	11	9	8
	Differential....	31	28	25	22	19	16	10	14	16	16	12
†Natchez, Miss.	Specific....	214	45	40	32	25	20	17	12	18	14	12
	Illinois....	214	40	32	25	20	16	15	14	12	10	9
	Differential....	5	8	7	5	4	2	2	2	6	4	3
†Vicksburg, Miss.	Specific....	236	45	40	32	25	20	17	12	18	14	12
	Illinois....	236	41	33	26	21	17	16	14	13	10	9
	Differential....	4	7	6	4	3	1	2	5	5	4	3
†Greenville, Miss.	Specific....	319	45	40	32	25	20	17	12	18	14	12
	Illinois....	319	45	37	29	23	18	17	16	14	11	10
	Differential....	0	3	3	2	2	0	2	4	4	3	2
†Helena, Ark.	Specific....	407	45	40	32	25	20	17	12	18	14	12
	Illinois....	407	48	40	32	25	20	19	18	16	13	11
	Differential....	3	0	0	0	0	0	2	6	2	1	1
†Memphis, Tenn.	Specific....	396	45	40	32	25	20	17	12	18	14	12
	Illinois....	396	48	40	32	25	20	19	18	15	12	11
	Differential....	3	0	0	0	0	0	2	6	3	2	1

* Yazoo & Mississippi Valley R.R. Tariff, I.C.C. No. 3818.

† Yazoo & Mississippi Valley R.R. Tariff, I.C.C. No. 3585.

‡ Specific rates are lower in these nine cases.

the shippers than the railways do, and (3) will both of these advantages be worth the cost of constructing the channel? A complete answer is not attempted in this short article. The writer has treated the subject of the Lakes-to-the-Gulf Waterway elsewhere. The chief purpose of the present paper is to present, for the consideration of those studying the subject as a whole, a comparison of the rates. A few comments on the nature of the proposed eight-

foot channel in comparison with the Mississippi River below St. Louis, however, are here offered.

The proposed channel of a minimum depth of eight feet between Chicago and St. Louis is made up of the Chicago River from Lake Michigan to the connection with the Chicago Sanitary and Ship Canal, over which there are some twenty-seven city and railroad bridges; of the Sanitary and Ship Canal, which is spanned by fifteen bridges; of the Des Plaines, the Illinois, and the Mississippi rivers, which are also spanned by several bridges. As proposed, there are also several locks on the routes. With a narrow canal forming a considerable portion of the route, and with some fifty bridges and several locks as obstructions, the proposed eight-foot channel could not be as efficient as the lower Mississippi with its broad channel and few bridges. That is, freight could not be transported for as low cost on this obstructed canal, where a speed of from three to five miles would be the average, as on the broad Mississippi, where a speed of from ten to fifteen miles is easily made.

The writer has shown elsewhere¹ that although there is a large freight traffic moving between St. Louis and Memphis, St. Louis and New Orleans, and Memphis and New Orleans, there is no significant amount of freight carried between any of these cities by boat. There is not even a packet line in operation between Memphis and New Orleans, and the line that operates between St. Louis and Memphis depends on way-freight for traffic. That is, the freight is either sent out from St. Louis and Memphis to the way-landings or is collected at those non-rail points and carried to St. Louis or Memphis. If the boats on the lower Mississippi neither carry any significant amount of the competitive freight nor compel the parallel railways to make as low rates as are now in effect throughout the entire state of Illinois, how can the proposed route between Chicago and St. Louis be of material service even to the privileged shippers on the banks of the route? Of course it might be aptly rejoined that the traffic conditions are very different in the lower Mississippi Valley from those in Illinois, that the density of freight traffic is much greater in Illinois, and that for this reason the boats could carry freight cheaper in Illinois than

¹ *Journal of Political Economy*, XX, 6 (July, 1912), pp. 541-73.

on the lower Mississippi. In reply it may be said that there is a large traffic moving between St. Louis and Memphis—enough to load boats to their full capacity—but the boats cannot attract the freight. Considering the material difference in the rates in the two sections and the low efficiency of the proposed route, moreover, the writer believes that the construction of this canal will be an economic waste, as that of so many others has been since the present status of railways has been attained.

Now that we have finished our study of the proposed channel between Chicago and St. Louis, some application of the conclusions arrived at in this case may be made to the general topic of the advisability of constructing waterways instead of railways. The problem is world-wide. An economist of China recently made inquiry of the writer as to how far the conclusions set forth in *The Lakes-to-the-Gulf Deep Waterway* could be generalized. He desired to know whether a network of canals or a system of national railways should be constructed by the young Chinese Republic. The traffic conditions in China are, of course, so fundamentally different from those in the Mississippi Valley that no comparison will be attempted here. But it is certain that China will not repeat the history of the nations that have brought railway development to its present status. The best types of railways may be constructed by that nation (since it is a densely populated country with great natural resources); and within a decade or two, traffic should be carried as cheaply by rail in China as it is now in the Mississippi Valley.

To many who have studied the statistics of traffic on the Rhine, the contrast with traffic on the Mississippi is a puzzle. Even here the conditions are not entirely comparable, and without a study of both traffic movement and rates, few generalizations can be safely made. The writer believes, however, that the *crux* of the whole matter lies in the fact that German railway freight rates are more than 12 mills per ton-mile, while the rates parallel to the Mississippi are approximately only 6 mills.¹ The railways were

¹ The charges per ton per mile, by rail between points on the Mississippi, are presented in *The Lakes-to-Gulf Deep Waterways*, pp. 52-53. Even if the express be separated from the freight of German railway traffic, the ton-mile charge would still be something more than 10 mills.

not built with a view to competing for the Rhine traffic, however, and the terminal facilities are excellent on the Rhine. The German railways were constructed as feeders to the Rhine in many cases instead of as competitors. These are important advantages in transportation on the Rhine over transportation on the Mississippi. Yet it is the conviction of the writer that the difference in rates is more fundamental than any other factor that causes traffic to continue on the Rhine while it dwindle on the Mississippi.

The conclusions drawn from the proposed channel between Chicago and St. Louis may be applied safely to other projects in the United States where the same grade of railway service exists and the same railway rates are applied as in Illinois. Three projects in the territory of the Central Freight Association¹ have received considerable attention. Here the Central Freight Association scale of distance rates applies, and these rates are even lower than the Illinois distance rates. The railways, moreover, are as efficient throughout this territory as in Illinois. Because of these conditions, it is safe to say that boat traffic on the proposed canals would be neither more easy to develop nor more advantageous to the shippers than in the case of the proposed channel between Chicago and St. Louis. One of the projects is to connect Chicago with Detroit. The canal would pass through a highly developed industrial district near Chicago at an enormous cost, and through a rich agricultural section throughout the larger part of the route. It is the opinion of the writer that little local traffic could be developed along the route because of rail competition, and that the through traffic would continue to pass through the Great Lakes at a higher speed, a lower risk, and in larger cargoes.

A canal of large dimensions has been projected between Pittsburgh, Pa., and Lake Erie. Approximately the same rail rates apply as between Chicago and Detroit. The proposed route passes through a highly developed industrial and a rich agricultural region. It would be necessary to construct numerous road and railway bridges across the channel either of sufficient clearance to allow the freighters to pass or equipped with machinery for

¹ This territory lies roughly west of Buffalo and Pittsburgh, north of the Ohio River, and east of the Mississippi River and Lake Michigan.

being raised. A large channel with a requirement for a high clearance would be a wasteful obstruction to transportation. In a highly developed industrial region served by a thick railway net of steam and electric lines, this obstruction is also a detriment to industrial development, and an additional expense in the construction of electric or steam railways, as well as a hindrance to transportation or even locomotion from bank to bank. A canal between the Ohio River and Lake Erie has also been proposed. The same low rates and obstructive disadvantages are to be considered in connection with this project as in the case of the Pittsburgh-Lake Erie route. There is, however, less traffic moving between the Ohio River and Lake Erie than between Pittsburgh and that lake.

The three proposed canals mentioned above lie in territory so very similar in traffic conditions to that of the proposed waterway between Chicago and St. Louis that the writer is convinced that the construction of any of them could be nothing but a blunder. Indeed, wherever the freight rates are so low and the railway service is so efficient as in Central Freight Association territory and in Illinois, it would be a waste of funds to construct canals of considerable length or even to spend large sums in improving river channels. The improvement of mouths of rivers forming connections with the sea for ocean vessels would, of course, be an exception to this statement. It is good transportation policy, perhaps, to improve the Columbia River below Portland, Oregon, or the Mississippi below New Orleans. But the expenditure of a large amount of funds on the Columbia River above Portland or on the Mississippi above New Orleans for navigation purposes, the writer is convinced, would not be in the interest of public welfare. The reason for this conviction is a belief that rail transportation, with few important exceptions, is now cheaper, by and large, than transportation by canals and rivers.

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